

Notice of Allowability

Application No.

10/814,205

Applicant(s)

AMUNDSON ET AL.

Examiner

Vincent E. Kovalick

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to applicant's amendment dated 1/9/06.
2. ☒ The allowed claim(s) is/are 2-6, 8-11, 13-18, 21-25, 27-41 and 43-86 (renumbered as 1-79).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 5/13/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to Applicant's Amendment dated January 9, 2006 in response to USPTO non-final Office Action dated August 22, 2005.

The cancellation of claims 1, 7, 12, 19, 20, 26 and 42; the amendments to claims 2-6, 8-11, 13-15, 18, 21-22, 25, 27 and 29; the addition of new claims 62-86 and consideration of Applicant's remarks are sufficient to place the application in a condition for allowance as set forth hereinbelow.

This application is a CIP of 10/065,795; Received 11/20/2002; Pub No. 7012600/20030137521.

Allowable Subject Matter

2. Claims 2-6, 8-11, 13-18, 21-25, 27-41 and 43-86 are allowed.

The following is an examiner's statement of reasons for allowance:

Relative to claims 2 and 8, the major difference between the teachings of the prior art of record (USP 5,663,772, Uehara et al. ; USP 5,335,294, Niki ; USP 5,831,705, Kaneko et al. and USP 5,923,340, Guttag et al.) and that of the instant invention is said prior art of record **does not teach** a device controller wherein the storage means is arranged to store data representing at least two gray level prior states of each pixel, with calculation means arranged to determine the impulse dependent upon the at least one temporal prior state, the at least two gray level prior states and the initial state of the one pixel.

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Relative to claims 3 and 9, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** the said controller wherein the storage means is arranged to store data representing at least two temporal prior states of each pixel, and the calculation means is arranged to determine the impulse dependent upon the at least two temporal prior state, the at least one gray level prior state and the initial state of the one pixel.

Relative to claims 14 and 21 the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a device controller wherein the output means is arranged to apply the compensation voltage to the pixel both during a period when a drive voltage is being applied to the pixel and during a hold period when no drive voltage is being applied to the pixel.

Relative to claims 15 and 22 the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a device controller wherein a device controller wherein the calculation means is arranged to update the compensation voltage for each pixel during each super frame required for a complete addressing of the display.

Relative to claim 27, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** the method step wherein the first and second drive scheme differ in bit depth.

Relative to claim 30, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a method of driving a bistable electro-optic display wherein for at least one transition from an initial state to a final

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state, the output signal comprises a DC imbalance fine tuning sequence which: (a) has a non-zero net impulse; (b) is non-contiguous; (c) results in a change in gray level of the pixel that is substantially different from the change in optical state of its DC reference pulse; and (d) results in a change in gray level of the pixel smaller in magnitude than the change in gray level caused by its time-reference pulse.

Regarding claim 43, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a method of driving a bistable electro-optic display wherein for a least one transition from an initial state to a final state the output signal comprises a DC balanced fine tuning sequence which: (a) has substantially zero net impulse; and (b) at no point in the fine tuning sequence, causes the gray level of the pixel to vary from its gray level at the beginning of the fine tuning sequence by more than about one third of the difference in gray level between the two extreme optical states of the pixel.

Relative to claim 45, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a method of driving a bistable electro-optic display comprising applying to each pixel of the display an output signal effective to change the pixel from an initial state to a final state, wherein for at least one transition, the output signal is non-zero but DC balanced.,

Regarding claim 57, the major difference between the teachings of the said prior art of record and that of the instant invention is said prior art of record **does not teach** a method of driving a bistable electro-optic display having at least one pixel which comprises applying to the pixel a waveform $V(t)$ such that: $J = \int_0^T V(t)M(t)dt$ (where T is the length of the waveform, the integral is over the duration of the waveform, $V(t)$ is the waveform voltage as a function of time t , and $M(t)$

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is a memory function that characterizes the reduction in efficacy of the remnant voltage in induce dwell-time-dependence arising from a short pulse at time zero) is less than about 1 volt sec.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Applicant's Remarks

3. In compliance with Applicant's request, in light of the allowed status of the application, the allowed claims are rearranged so that the dependent claims follow immediately after the claims from which they depend

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	5,831,588	Hotto
U. S. Patent No.	5,805,175	Priem
U. S. Patent No.	5,061,044	Matsunaga
U. S. Patent No.	4,725,129	Kondo et al.

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To Respond

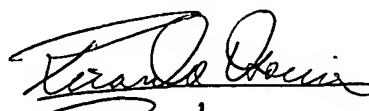
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Vincent E. Kovalick
March 10, 2006


Ricardo Osorio
PRIMARY EXAMINER